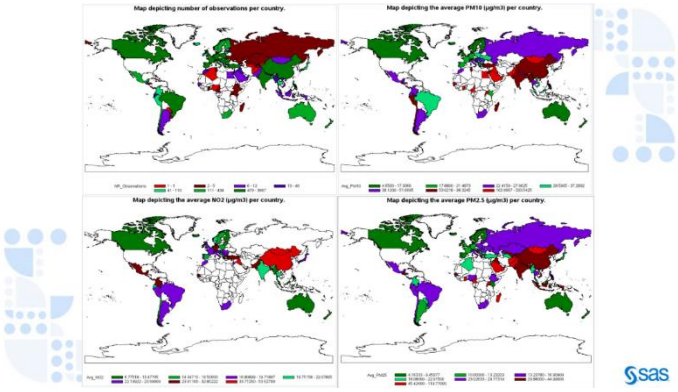
Analysis of GDP and Mortality Rate Based on Air Pollution in a Selection of Cities



This research examines an air pollution database from the World Health Organization (WHO) to explore the correlation between air pollution levels in selected cities, Gross Domestic Product (GDP), and mortality rates. We utilized SAS® OnDemand for Academics to analyze the data, employing various visualization and statistical techniques. To enhance data interpretation, we generated maps illustrating air pollution levels, GDP, and mortality rates. Additionally, we conducted a linear regression analysis to examine the impact of different pollutants on mortality rates:

- Nitrogen Dioxide (NO2) is a highly reactive gas formed primarily from the combustion of fossil fuels. It is a significant air pollutant with various health and environmental impact;
- Particulate Matter (PM10) refers to inhalable particles with diameters that are generally 10 micrometers and smaller. These particles can come from various sources, including construction sites, unpaved roads, and industrial emissions;
- Particulate Matter (PM2.5) refers to fine inhalable particles with diameters that are generally 2.5 micrometers and smaller. These particles are particularly dangerous due to their ability to penetrate deep into the lungs and even enter the bloodstream.

Another regression analysis was performed to assess the percentage of deaths relative to each country's total population, considering the same pollutants. Several conclusions of the current study are:

- PM2.5 and PM10 levels show correlation, while NO2 seems not to be directly tied to the other two pollutants;
- the South-East Asian region is the most affected by PM2.5 pollution while the Americas region is the least affected;
- the three countries with the highest NO2/Mean GDP are Sweden, Luxemburg and France.